What Is Claimed Is:

1. Sampling apparatus, comprising:

a sampler operable to obtain discrete samples of product from a body of product, said sampler including a sampler body having a bore and a forward opening from said bore;

plunger means having a product sample receiving opening;

means for reciprocating said plunger means in said bore to each of a sample receiving position where said plunger means sample receiving opening is extended forward out of said forward bore opening, a sample delivering position where said plunger means sample receiving opening is retracted rearward to a position in said bore, and a parked position in said bore intermediate said sample receiving and delivering positions; and

means for locking and unlocking said plunger means against and for reciprocation when said plunger means is in said parked position.

2. Sampling apparatus as in claim 1, wherein said plunger means has a forward end that is positioned rearward from said bore opening when said plunger means is in said sample delivering position and close to said bore opening when said plunger means is in said parked position.

3. Sampling apparatus as in claim 1, wherein said plunger means has a forward end that is positioned rearward from said bore opening when said plunger means is in said sample delivering position and at said bore opening when said plunger means is in said parked position.

4. Sampling apparatus as in claim 1, wherein said plunger means sample receiving opening comprises an annular opening in and circumferentially around said plunger means.

5. Sampling apparatus as in claim 1, wherein said means for locking and unlocking comprises means for locking and unlocking said means for reciprocating against and for reciprocation when said plunger means is in said parked position.

6. Sampling apparatus as in claim 1, wherein said means for reciprocating comprises means for manually reciprocating said plunger means.

7. Sampling apparatus as in claim 1, wherein said means for reciprocating comprises a handle for being manually reciprocated by an operator, and means for connecting said handle and said plunger means for reciprocation of said plunger means by said handle.

8. Sampling apparatus as in claim 7, wherein said means for connecting includes a driver rod connected at one end to said handle and at an opposite end to said plunger means, and including means for guiding and controlling reciprocation of said handle, said driver and said plunger means.

9. Sampling apparatus as in claim 8, wherein said means for guiding and controlling includes a guide sleeve around said driver rod, said guide sleeve having a longitudinal slot, and a stop carried by said driver rod and extending into said slot for reciprocation of said stop in said slot with reciprocation of said driver rod in said guide sleeve, said slot guiding said stop and driver rod during reciprocation of said driver rod and having forward and rearward ends that are engaged by said stop to limit the

longitudinal extent of reciprocation of said stop and thereby said driver rod and plunger means.

10. Sampling apparatus as in claim 9, wherein said means for locking and unlocking said plunger means against and for reciprocation includes means for locking and unlocking said stop against and for reciprocation when said plunger means is in said parked position.

11. Sampling apparatus as in claim 9, wherein means for locking and unlocking said plunger means against and for reciprocation includes a circumferential extension of said slot into which said stop is moved when said plunger means is in said parked position to lock said stop and thereby said plunger means against reciprocation, and out of which extension said stop is moved to unlock said stop and thereby said plunger means for reciprocation.

12. Sampling apparatus as in claim 11, wherein said handle, drive rod, stop and plunger means can be rotated when said plunger means is in said parked position to move said stop into and out of said circumferential extension.

13. Sampling apparatus as in claim 1, including means for collecting product samples from said plunger means sample receiving opening when said plunger means is at said sample delivering position.

14. Sampling apparatus as in claim 13, wherein said means for collecting product samples includes an outlet from said sampler body bore at said plunger means sample delivering position.

15. Sampling apparatus as in claim 1, wherein said sampling apparatus is for obtaining discrete samples of dry product from a body of the dry product.

16. Sampling apparatus as in claim 1, wherein said plunger means sample receiving opening comprises a sample receiving recess in said plunger means.

17. Sampling apparatus as in claim 1, wherein said plunger means sample receiving opening comprises an annular recess in said plunger means.

18. A sampling apparatus for obtaining discrete samples of dry product from a body of dry product, comprising:

a sampler body having a bore extending therethrough and a forward opening from said bore;

a sampling plunger having a product sample receiving recess intermediate forward and rearward ends thereof;

means for reciprocating said plunger in said bore in a forward direction to extend said forward end of said plunger and said sample receiving recess through said bore forward opening to a sample receiving position in the body of dry product to receive a product sample in said recess, for then reciprocating said plunger in a rearward direction to retract said plunger sample receiving recess and forward end said through said bore opening to a sample delivering position in said bore, and for then reciprocating said plunger to a parked position in said bore forward from said sample delivering position and rearward from said sample receiving position, and

means for locking and unlocking said plunger against and for reciprocation when said plunger is in said parked position.

19. Sampling apparatus as in claim 18, wherein said plunger forward end is positioned rearward from said bore forward opening when said plunger is in said

sample delivering position and close to said bore forward opening when said plunger is in said parked position.

20. Sampling apparatus as in claim 18, wherein said plunger forward end is positioned rearward from said bore forward opening when said plunger is in said sample delivering position and at said bore opening when said plunger is in said parked position.

21. Sampling apparatus as in claim 18, wherein said plunger product sample receiving recess comprises an annular recess in and circumferentially around said plunger.

22. Sampling apparatus as in claim 18, wherein said means for reciprocating comprises means for manually reciprocating said plunger, and said means for locking and unlocking said plunger against and for reciprocation comprises means for locking and unlocking said manually reciprocating means against and for reciprocation when said plunger is in said parked position.

23. Sampling apparatus as in claim 22, wherein said means for manually reciprocating comprises a handle for being manually moved by an operator, a driver rod connected at one end to said handle and at an opposite end to said plunger, and means for guiding and controlling reciprocation of said handle, said driver rod and said plunger.

24. Sampling apparatus as in claim 23, wherein said means for guiding and controlling includes a guide sleeve around said driver rod, said guide sleeve having a longitudinal slot, and a stop carried by said driver rod and extending into said slot for reciprocation in said slot with reciprocation of said driver rod in said guide sleeve, said

slot guiding said stop and driver rod during reciprocation of said driver rod and said slot having forward and rearward ends that are engaged by said stop to limit the longitudinal extent of reciprocation of said stop, said driver rod and said plunger, and said means for locking and unlocking said plunger means against and for reciprocation including means for locking and unlocking said stop against and for reciprocation in said slot when said plunger is at said parked position.

25. Sampling apparatus as in claim 24, wherein means for locking and unlocking includes a circumferential extension of said slot into which said stop is moved when said plunger is in said parked position to lock said plunger against reciprocation and out of which said stop is moved to unlock said plunger for reciprocation, and wherein said handle, drive rod, stop and plunger can be rotated when said plunger is in said parked position to move said stop into and out of said circumferential extension.

26. A method of sampling a dry product, comprising the steps of:

providing a sampler body having a longitudinal bore and a forward opening from the bore;

positioning a plunger, having a sample receiving opening intermediate forward and rearward ends thereof, in the bore;

extending the plunger forward through the bore to a sample receiving position where the plunger forward end and sample receiving opening are projected out of the bore forward opening and into a body of dry product to receive in the sample receiving opening a sample of dry product;

after said extending step, retracting the plunger rearward through the bore to a sample delivering position to deliver the product sample in the plunger sample

receiving opening to a sample collecting point in the bore, the forward end of the plunger at the sample delivering position being rearward from the bore forward opening, so that a length of the bore then exists between the plunger forward end and the bore forward opening;

removing the dry product sample from the sample receiving opening at the sample delivering position;

after said removing step, moving the plunger forward to a parked position intermediate the sample delivering and the sample receiving positions; and

locking the plunger in the parked position.

27. A method as in claim 26, wherein said step of moving the plunger forward to the parked position comprises moving the plunger forward to position the plunger forward end close to the bore opening, so that the plunger closes the bore rearward from the plunger forward end.

28. A method as in claim 26, wherein said step of moving the plunger forward to the parked position comprises moving the plunger forward to position its forward end at the bore opening, so that the plunger closes the bore rearward from the bore forward opening.

29. A method as in claim 26, wherein each of said extending, retracting, moving and locking steps are manually performed.